ined the impact of changes in private drug plan formulary design on the health of private plan beneficiaries. **METHODS:** A search of the medical literature was conducted using the PubMed search engine. Search terms included combinations of reimbursement, formulary, plan, payer, restriction, cost, and adherence. The 'related articles' feature in PubMed was also used to identify relevant papers. **RESULTS:** While no published studies of Canadian employer-sponsored drug plans were identified, there were 15 North American studies that focused on the effects of changes in drug plan design. This body of research demonstrated three key points. Cost-sharing initiatives resulted in a reduction, or complete cessation, of medication consumption, including drugs deemed "essential", and that decreased adherence to drug therapy can actually lead to the increased use of other more expensive health care resources. On the other hand, higher levels of medication adherence, which increased drug costs, were associated with lower overall health care costs. Employee satisfaction with their employer drug plan decreased when cost-containment measures were implemented and this is a problem for employers since drug plan changes typically involved increasing fees or imposing more restrictions to access. **CONCLUSION:** A short-term focus on controlling drug costs is likely to have negative consequences on the health, productivity and satisfaction of plan members. If changes to drug plans are not properly assessed, there can be undesirable and expensive consequences for plan members and employers. Employers need a longer term framework to guide and support health plan decision-making that avoids sudden or drastic changes to health benefits. Careful consideration of drug plan design and cost-sharing can improve medication adherence, health outcomes, employee satisfaction, and costs.

**PHP25**

### TOWARD HIGH PERFORMANCE 'PHARMACARE' SYSTEMS: A REVIEW OF EXPERIENCES IN SEVEN COUNTRIES

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**OBJECTIVES:** While pharmaceuticals can significantly improve the health of patients and help to mitigate health-related inequities within a population, their rising prominence within health systems is not without challenges. This paper explores health related aspects of pharmaceutical policy in Australia, Canada, Germany, The Netherlands, New Zealand, the UK and the United States. **METHODS:** Drawing on published goals for national policies, we developed a framework for gauging pharmacare system performance. We review policy structures and investigate system performance using preliminary indicators drawn from the 2007 Commonwealth Fund Survey. Survey responses to questions related to accessibility, affordability, and appropriateness are compared across countries and stratified by age, income and morbidity. **RESULTS:** Shares of populations reporting prescription drug use were lowest in Germany and highest in the US. Pharmaceutical use displayed expected age gradients in all countries and expected income gradients in all but Germany and the US. Cost-related non-adherence was most frequent in the US and Australia, and relatively unlikely among elderly populations. Relatively few patients reported prescribing errors, with no significant differences across countries. Out-of-pocket drug costs were highest in the US and Canada. From 1995 to 2005, pharmaceutical expenditures outpaced health care and GDP in all countries except New Zealand. Expenditure grew most quickly in the US. **CONCLUSION:** Though no country appears uniformly strong in all areas of pharmacare policy, several appear to have done well to manage difficult tensions in the pharmaceutical sector.

**PHP26**

### RESEARCH AND MARKETING COMPLEMENTARITY IN PHARMACEUTICAL FIRMS: EMPIRICAL EVIDENCE

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**OBJECTIVE:** Snyder and King (2007) developed a theoretical model of firm behavior in which research and marketing activities are complements rather than substitutes. Public policy debate frequently makes the implicit assumption that the two activities are substitutes. In this paper the author uses financial reports of Fortune 200 pharmaceutical firms to examine the evidence for Snyder and King's theoretical model. **METHODS:** We extract research and marketing expenditure totals from the quarterly filings of the eight largest U.S. based pharmaceutical companies. We also create a comparator list of non-pharmaceutical companies matched for size and using pre-specified exclusion criteria. Univariate analysis is used to test whether pharmaceutical companies are systematically different from the comparator companies. Simple regression analysis is used to test whether companies with higher research/revenue ratios have higher or lower marketing/revenue ratios. **RESULTS:** Pharmaceutical firms spend a greater share of revenue on both marketing and R&D than the comparator firms. The share spent on marketing is similar to a subgroup of the comparator firms. The share spent on research is uniquely high. Pharmaceutical firms are also unique in their combination of high marketing and high research spending. Regression analysis shows no significant relationship (positive or negative) between research and marketing expenditure. **CONCLUSION:** Empirical analysis provides limited support to the theory developed in Snyder and King (2007). The absence of significant regression results may be due to the time lag between development and approval for sale.

**PHP27**

### ESTIMATION AND COMPARISON OF ORTHOTIC BRACE COSTS WITH REIMBURSEMENT TARIFFS AND RETAIL PRICES IN BELGIUM

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**OBJECTIVE:** The RIZIV/INAMI, the Belgian third-party payer, aims to set reimbursement tariffs at a level that reflects costs of orthotic braces. In the absence of publicly disclosed information on the cost structure of braces, estimating production and distribution costs of braces is valuable to reimbursement agencies with a view to setting tariffs. The aim of this study is to calculate the cost of production and distribution of a prefabricated hard neck brace and a prefabricated hard knee brace, and to explore whether Belgian tariffs and actual retail prices correspond with estimated costs of these two braces. **METHODS:** The cost model took into account manufacturing costs, general overhead, research and development, warehousing, profit and distribution margins. Data were gathered from manufacturers, a visit to a production site, desk research, a decomposition of finished products and interviews with stakeholders. The price year was 2007.

**RESULTS:** The cost model generated an estimated retail price of €55 or €113 for the neck brace depending on assumptions. The estimated retail price for the neck brace was lower than the reimbursement tariff of €194 and the actual retail price of €241. With respect to the knee brace, the estimated retail price of €331 or €523 was inferior to the tariff of €580 and the actual retail price of €948. **CONCLUSION:** Actual retail prices and reimbursement tariffs for two selected neck and knee braces substantially exceeded retail prices based on estimated production and distribution costs. Therefore, there seems to be scope for reducing reimbursement tariffs and containing public expenditure on orthotic braces.

**PHP28**

### THE PROCESS OF UPDATING THE NATIONAL LIST OF HEALTH SERVICES IN ISRAEL: IS IT LEGITIMATE? IS IT FAIR?

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**OBJECTIVE:** The Israeli National Health Insurance Law stipulates a National List of Health Services (NLHS) which all residents are entitled from their HMOs. This list has been updated annually for almost a decade using a structured review and decision-making process. Although the Israeli explicit priority-setting experience is unique and may be considered groundbreaking, its fairness and legitimacy have not been assessed. To assess the priority-setting process for compliance with the four conditions of accountability for reasonableness outlined by Daniels and Sabin (relevance, publicity, appeals, and enforcement), and with the four steps of the trans-disciplinary model for priority setting in health care (reasonableness, transparency, responsiveness, and accountability). **METHODS:** We used such data as public documents, audit reports, literature review, the mass media, observations from the meetings of the Public Adivosry Committee responsible for recommending new technologies for th NLHS, and interviews with the committee members. **RESULTS:** The Israeili process for updating the NLHS does not fulfill the appeals and enforcement conditions, and only partially follows the publicity and relevance conditions, outlinesd in the accountabilty for reasonableness and transparency framework. Only the reasonableness and transparency steps of the trans-disciplinary model are partially fulfilled, but the priority setting process lacks responsiveness and accountability. **CONCLUSION:** The fairness and legitimacy of the priority-setting mechanism have not been established. The main obstacles for achieving these goals may relate to the large number of technologies assessed each year within a short time frame (500 technologies assessed in 2007), the lack of personnel engaged in health technology assessment and the desire for early adoption of new technologies. Changes in the priority-setting process should be made in order to increase its acceptability among the different stakeholders.

**PHP29**

### STAKEHOLDER PERSPECTIVES ON ECONOMIC EVALUATION: THE CASE OF NICE

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**OBJECTIVE:** Stakeholder involvement in health technology assessment (HTA) is of growing importance, as their participation in and support of economic evaluation is generally considered to improve the assessment process and subsequent implementation. Consequently, in early 2007, the Health Select Committee of the UK House of Commons initiated a public inquiry into the National Institute of Health and Clinical Excellence (NICE), calling for comments from a variety of stakeholders. This study aimed to examine stakeholder perspectives on several topics, including public confidence in NICE; appropriateness of economic evaluation methods; and, effectiveness of guidance implementation. **METHODS:** All stakeholder submissions (n = 92) were systematically reviewed and key themes were identified across three principal categories: 1) organisation and process; 2) methods; and 3) decision-making and implementation. **RESULTS:** Stakeholders identified a number of overarching issues regarding NICE and economic evaluation, more broadly. Firstly, despite its "arms-length" organisational structure, NICE is perceived to lack independence. Secondly, stakeholders contented that its methods assume an overly narrow perspective, especially regarding the use of RCTs, QALYs, and measures of costs and benefits. Thirdly, commentators asserted that manufacturers, clinical experts, and patients should play a greater role in HTA processes. Fourthly, the time taken to issue guidance was considered an important limitation, especially given evidence that local decision-makers delay the introduction of new treatments pending NICE's decision(s). Other key concerns included inconsistent local implementation of guidance and the overall transparency of NICE operations. **CONCLUSION:** Most stakeholders support the overall role of NICE in the NHS, and acknowledge that the Institute generally undertakes rigorous assessments. Nevertheless, many criticisms were put forth by stakeholders. NICE should continue to capitalise on its strengths, while pioneering solutions to address existing limitations and challenges. However, it is unlikely that any national HTA system will satisfy the needs and expectations of all key parties.

## HEALTH CARE USE & POLICY STUDIES— Disease Management

**PHP30**

### COST-EFFECTIVENESS ANALYSIS AND RETURN ON INVESTMENT OF HIGH COST PATIENTS MANAGEMENT PROGRAM WITHIN A PRIVATE HEALTH CARE PLAN IN BRAZIL

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**OBJECTIVE:** To evaluate a methodology of managing high cost patients, called Case Management Program (CMP), within a private health plan in southern Brazil and show that such program is cost-effective and the return on investment (ROI) is positive. **METHODS:** Using NAGIS(c) model and software for disease management program, the CMP was implemented in 211 patients (0.9% of the health plan beneficiaries). I compared health plan utilization and costs including CMP costs of one period of time before the program starts with the same period of time that the program was in place. **RESULTS:** After 9 months of CMP, there were 162 patients. I considered outcomes for these 162 patients. For one Real invested, R$4,78 was saved (One 2008 American Dollar is 1,78 Brazilian Real). The average cost per enrollee per month reduced 45.9% (R$463,85 to R$250,89) and 39.4% (R$463,85 to R$280,90) if the program's costs (direct and indirect costs) are included as fixed costs. The number of visits reduced by 11.3% (794 to 704), as well as the labs exams which reduce 35.7% (420 to 270). Nevertheless, the labs exams per visit index reduce by 27.5%, where almost 53% of the visits had at least one exam before starting the program against 38.3% after the same period of time that the program starts. The number of hospitalizations reduced 34.6%, from 483 to 316. Thus, the bed-days saved were 554 days at infirmaries and 62